

# Notice of Allowability

Application No.

09/749,006

Examiner

Wesley D Markham

Applicant(s)

SELLINGER, ALAN

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the attached examiner's amendment.
2. ☒ The allowed claim(s) is/are 1-22,28,29 and 36-39.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☒ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date attached.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date attached.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

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### **EXAMINER'S AMENDMENT / ALLOWANCE**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Michael O'Neill on 9/14/2004.

The application has been amended as follows:

#### **In the claims:**

Claims 23 – 27 and 30 – 35 have been canceled.

Claim 11 has been amended to read as follows:

11. (currently amended) A process for preparing luminescent organic-inorganic nanocomposite thin films according to claim 1, wherein the coupling agent is 7-octenyltrimethoxysilane.

#### **In the specification:**

On page 6, line 10, the word "Mylar®" has been replaced with the word --MYLAR--.

On page 16, line 17, the word "Mylar®" has been replaced with the word --MYLAR--.

**In the drawings:**

The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Figure 1 is to be labeled "Prior Art" because only that which is old is shown. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

**In the oath/declaration:**

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because the clause regarding "willful false statements ..." required by 37 CFR 1.68 has been omitted.

***Reasons for Allowance***

*Claims 1 – 22, 28, 29, and 36 – 39 are allowed.*

The following is an examiner's statement of reasons for allowance: Independent Claims 1 (from which Claims 2 – 22 depend), 28 (from which Claim 29 depends), and 36 (from which Claims 37 – 39 depend) are all drawn to a process for preparing

luminescent organic-inorganic nanocomposite thin films. The process generally comprises admixing (e.g., obtaining a homogeneous solution of) various components, including a soluble silicate (or silica sol), a silica coupling agent, a surfactant having a concentration below the critical micelle concentration, a solvent, and an organic material / organic moiety substituent selected from hole transport, electron transport, and emissive material moieties, and evaporating the organic solvent to promote or induce micelle formation and organization into liquid mesophases and produce the self-assembled nanocomposite thin film. A summary of the closest prior art of record follows: Sellinger et al. ("Continuous self-assembly of organic-inorganic nanocomposite coatings that mimic nacre", *Nature*, Vol.394, pages 256 – 260, July 1998) teaches a micelle-based self-assembly process to produce an organic-inorganic nanocomposite thin film. However, Sellinger et al. does not teach or reasonably suggest including an organic material / organic moiety substituent selected from hole transport, electron transport, and emissive material moieties in the solution so that the resulting nanocomposite thin film is luminescent, as required by the claims, and there would have been no reasonable expectation of success (i.e., successfully producing a luminescent nanocomposite thin film by using the process claimed by the applicant) in doing so. Chondroudis et al. (USPN 6,420,056), Tokito et al. (USPN 5,783,292), Marks et al. (USPNs 6,586,763 and 6,399,221), Chou (USPN 6,361,885), Koizumi et al. (USPN 6,297,842), and Sellinger et al.(2) (USPN 6,517,958) all teach various luminescent organic-inorganic composite materials and/or thin films and methods to make such films (e.g., by vapor deposition, by producing a self-assembled perovskite structure, by

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bonding or modifying a siloxane material with a desired luminescent functional material, etc.). However, none of the aforementioned references, alone or in combination, teaches or suggests a method of producing the luminescent nanocomposite thin film in the manner claimed by the applicant, and there would have been no motivation or reasonable expectation of success to do so, absent the applicant's teachings in the present application. For these reasons, independent Claims 1, 28, and 36 are allowed. Since Claims 2 – 22, 29, and 37 – 39 depend from the aforementioned independent claims, these claims are also allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

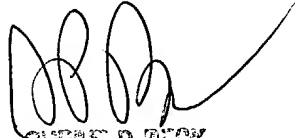
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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